

Claims

WHAT IS CLAIMED IS:

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1. A switch, comprising:

10 a switch core, wherein the switch core has a plurality of inputs and a plurality of outputs, wherein the switch core passes data received on the plurality of inputs to the plurality of outputs based on routing tags; and

15 a plurality of line card managers operably coupled to the switch core and adapted to couple to a plurality of line card pairs, wherein each line card manager includes:

20 an arbiter that couples to a first line card and a second line card of a line card pair, wherein each line card manager couples to a different line card pair, wherein each arbiter is operably coupled to a corresponding input of the plurality of inputs of the switch core, wherein the arbiter provides ingress data from one of the first and second line cards to the corresponding input to the switch core based on selection information; and

25 a router operably coupled to a corresponding output of the plurality of outputs of the switch core, wherein the router couples to the first line card and the second line card, and wherein the router provides egress data from the corresponding output to at least one of the first and second line cards based on routing information included in the egress data.

30 2. The switch of claim 1, wherein each line card manager further comprises buffering circuitry operably coupled to the arbiter, wherein the buffering circuitry buffers ingress data from the first and second line cards, wherein the arbiter provides ingress data from the buffering circuitry to the switch core based on the selection information.

3. The switch of claim 2, wherein the buffering circuitry further comprises a first buffer and a second buffer, wherein the first buffer couples to the first line card, wherein the second buffer couples to the second line card, and wherein the first and second buffers are first in first out buffers.

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4. The switch of claim 1, wherein the selection information determines an active line card of the line card pair and an inactive line card, wherein the arbiter preferentially passes active line card data over inactive line card data.

10 5. The switch of claim 4, wherein when idle states are present in the active line card data, the arbiter passes inactive line card data.

6. The switch of claim 4, wherein the routing information included in the egress data further comprises a first bit and a second bit, wherein when the first bit is active the egress data is provided to the active line card, and wherein when the second bit is active, the egress data is provided to the inactive line card

15 7. The switch of claim 4, wherein each line card manager further comprises filters operably coupled to the arbiter, wherein the filters pass selected data types and reject other data types.

20 8. The switch of claim 7, wherein filters are configured based on a register that determines the selected data types.

25 9. The switch of claim 8, wherein each line card manager includes an active register and an inactive register, wherein the active register configures a filter corresponding to the active line card, and the inactive register configures a filter corresponding to the inactive line card.

30 10. The switch of claim 1, wherein the routing information included in the egress data further comprises a first bit and a second bit, wherein when the first bit is active the

egress data is provided to the first line card, and wherein when the second bit is active, the egress data is provided to the second line card.

11. The switch of claim 1, wherein the switch core further comprises a NxN switch core and the plurality of line cards includes 2N line cards.
12. The switch of claim 1 further comprises a switch for use in a cell based network.
13. The switch of claim 1 further comprises a switch for use in a packet based network.
14. The switch of claim 13 further comprises an asynchronous transfer mode switch.

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15. A switch, comprising:

a switch core, wherein the switch core has a plurality of inputs and a plurality of outputs, wherein the switch core passes data received on the plurality of inputs to the

5 plurality of outputs based on routing tags; and

a plurality of line card managers operably coupled to the switch core, wherein each line card manager includes:

10 an arbiter that couples to a plurality of line cards, wherein each line card manager couples to a different plurality of line cards, wherein each arbiter is operably coupled to a corresponding portion of the plurality of inputs of the switch core, wherein quantity of line cards to which a line card manager couples is greater than quantity of inputs to which the line card manager is coupled,

15 wherein the arbiter provides ingress data from a line card of the plurality of line cards to which it couples to each input to which it is coupled based on selection information; and

20 a router operably coupled to a corresponding portion of the plurality of outputs of the switch core, wherein the router couples to the plurality of line cards, wherein the router provides egress data from each output of the corresponding portion of the plurality of outputs to at least one of one of the plurality of line cards based on routing information included in the egress data.

25 16. The switch of claim 15, wherein each line card manager further comprises buffering circuitry operably coupled to the arbiter, wherein the buffering circuitry buffers ingress data from the plurality of line cards to which the line card manager couples, wherein the arbiter provides ingress data from the buffering circuitry to the switch core based on the selection information.

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17. The switch of claim 1, wherein the selection information determines active line cards and inactive line cards of the plurality of line cards, wherein the arbiter preferentially passes active line card data over inactive line card data.

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18. A method for managing line cards in a system that includes redundant line cards, comprising:

5 selecting ingress data from data received from a first line card and a second line card, wherein selecting is based on an active select signal, wherein the active select signal determines an active line card and an inactive line card from the first and second line cards;

10 providing the ingress data to an input of a switch core, wherein the switch core includes a plurality of inputs and a plurality of outputs;

receiving egress data from one of the plurality of outputs of the switch core; and

15 selectively providing the output data to at least one of the first and second line cards based on routing information included in the egress data.

19. The method of claim 18 further comprises buffering the data received from the first and second line cards prior to selecting the ingress data.

20. The method of claim 19 further comprises filtering the data received from the first and second line cards based on which is the active line card.

21. The method of claim 20, wherein selecting the ingress data further comprises preferentially selecting active line card data over inactive line card data, wherein inactive line card data is selected when idle data is provided by the active line card.

22. The method of claim 21, wherein selectively providing the egress data further comprises providing the egress data based on a first bit and a second bit, wherein when the first bit is active, the egress data is provided to the first line card, and wherein when the second bit is active, the egress data is provided to the second line card.

23. The method of claim 21, wherein selectively providing the egress data further comprises providing the egress data based on a first bit and a second bit, wherein when the first bit is active, the egress data is provided to the active line card, and wherein when the second bit is active, the egress data is provided to the inactive line card.

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